



## EPA Region 7 TMDL Review

**TMDL ID:** IA 04-LDM-0228\_0      **Waterbody ID:** IA 04-LDM-0228\_0  
**Waterbody Name:** CAMP CREEK  
**Tributary:** CAMP CREEK  
**Pollutant:** NUTRIENTS, SEDIMENT  
**State:** IA      **HUC:** 07100008  
**BASIN:** Des Moines River  
**Submittal Date:** July 19, 2005  
**Approved:** Yes

### Submittal Letter

*State submittal letter indicates final TMDL(s) for specific pollutant(s)/water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.*

The TMDL for Camp Creek was formally submitted by the Iowa Department of Natural Resources (IDNR) in a letter received by EPA on July 21, 2005.

### Water Quality Standards Attainment

*The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

The use of a stressor identification determines the likely causes of impairment to the narrative water quality criteria. These causes are nutrients (phosphorus) and sediment. Impairment was determined by Camp Creek's scores in the Fisheries Index of Biological Integrity (FIBI) and Macro invertebrate Index of Biological Integrity (BMIBI) for nutrients and the FIBI, BMIBI and %sand for sediment impairment. The stressor identification compares scores for Camp Creek to reference streams in the same ecological region. FIBI and BMIBI scores at or below the 25th percentile are considered impaired. To reach the reference indices for sediment will require a reduction of 6,000 tons per year of sediment to achieve a loading capacity of 7,100 tons per year. This reduction is likely to result in the attainment of water quality standards.

Phosphorus reductions are not called for at this time, this will be a monitoring TMDL in regards to phosphorus loading. The phosphorus load pre-2004 was estimated using the Generalized Watershed Loading Function (GWLF) model, and determined to be 24,000 pounds per year. In 2004 the City of Mitchellville STP upgraded from an aerated lagoon system to a sequencing batch reactor. Two wastewater lagoons at highway rest areas have also been inactivated. For phase 1 of the TMDL there is no targeted phosphorus reduction.

### Numeric Target(s)

*Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.*

Beneficial use of Little Floyd River is protection of aquatic life (Class B(LR)). In 1998 the use was assessed as partially supported because of low fish diversity. Later bioassessments confirmed this assessment through the metrics of the FIBI and BMIBI. To meet its designated use Camp Creek's biological integrity must score a median FIBI greater than 55 (32 if no riffles) for the sites in region 47f (Southern Iowa Rolling Loess Prairies) and 41 (34 if no riffles) for the site in region 47b (Des Moines Lobe) and median BMIBI greater than 63 for the sites in region 47f and 53 for the site in region 47b.

#### **Numeric Target(s) and Pollutant(s) of concern**

*An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.*

The linkage is defined through the Stressor Identification for Camp Creek. This document identifies the most likely causes for lowered scores on indices of biological integrity as nutrients (phosphorus) and sediment. The linkage of cause is defined by discrepancies between nutrient (phosphorus) and sediment concentrations in Camp Creek and regional reference streams.

#### **Source Analysis**

*Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.*

Sediment impacts were identified in the stressor identification based on the percent of sand in the river substrate. The existing load was determined using the RUSLE and NRCS Erosion and Sedimentation Delivery procedure. FIBI and BMIBI scores at or below the 25th percentile are considered impaired, therefore, the target for percent sand in Camp Creek is set at the 25th percentile median percent sand in reference streams in the same ecoregion. Nonpoint sources for sediment are sheet and rill erosion from agricultural land, streambanks and gullies. Point sources are the City of Mitchellville STP (NPDES IA0021997) and Thomas Mitchell Park (NPDES IA0066966). An additional facility, Metro Park East landfill (General Permit 01), has been given a zero percent reduction because of extensive BMP implementation.

For nutrients (phosphorus) the impairment is described as the difference in the phosphorus concentrations in the reference streams versus those in Camp Creek. Sources of phosphorus in Camp Creek are both point and nonpoint. Nonpoint sources include sediment attached phosphorus from agricultural production, cattle in streams, cattle and swine held in confined animal feeding operations (CAFOs), and land application of fertilizer and manure in agricultural and urban settings. Point sources of phosphorus include two Iowa Department of Transportation rest area waste stabilization lagoons, City of Mitchellville STP, Thomas Mitchell Park waste stabilization lagoon and Metro East Park Landfill.

Background sources were not separated from the assessment.

It seems all major sources have been considered.

#### **Allocation**

*Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.*

The allocation of sediment is based on a 1:1 relationship between eroded sediment and percent sand found in the river's substrate.

The nutrient TMDL is monitoring only. The estimated phosphorus load pre-2004 was determined using the Generalized Watershed Loading Function (GWLf) model to be 24,000 pounds per year. In 2004 the City of Mitchellville STP upgraded from an aerated lagoon system to a sequencing batch reactor. Two wastewater lagoons at highway rest areas have also been inactivated.

#### **WLA Comment**

There are two point source discharges targeted for sediment reduction. The WLA is set to 80 tons per year (79 tons for City of Mitchellville STP (NPDES IA0021997) and 1 ton for Thomas Mitchell Park (NPDES IA0066966)). The other two point sources, Iowa Department of Transportation waste stabilization lagoons, are no longer active.

The nutrient TMDL is monitoring only. The WLA for the City of Mitchellville STP (NPDES IA0021997) will not be set in phase I of this TMDL. For this TMDL 0% reductions are set for Thomas Mitchell Park lagoon (NPDES IA0066966) and Metro Park East landfill (General Permit 01). Allocations will be adjusted after determining the impact of the upgraded treatment facility of the City of Mitchellville.

#### **LA Comment**

The load allocation for sediment is set at 6,665 tons per year.

The nutrient TMDL is monitoring only. The allocation will be adjusted after further data is collected regarding the upgraded City of Mitchellville STP.

#### **Margin of Safety**

*Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.*

The MOS for sediment is explicit at 355 tons per year which is 5% of the TMDL and implicit in that all TSS from the WLA is considered sediment. The administrative record also describes the explicit MOS is 5% vs. the standard 10% which would be invoked if no implicit MOS was included. Additionally, there is an implicit MOS in that the primary target is the attainment of full support for the designated use based on the fish and benthic invertebrate population.

The MOS for nutrients is implicit in that the primary target is the attainment of full support for the designated use based on the fish and benthic invertebrate population.

#### **Seasonal Variation and Critical Conditions**

*Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).*

The TMDL for sediment applies throughout the year and is expressed as an annual load.

#### **Public Participation**

*Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).*

TMDL staff met with Metro East Park (MPE) Landfill staff on June 3, 2004 and the MPE stewardship committee on June 16, 2004. TMDL staff are also on the advisory board for the watershed project and the MPE stewardship committee. The draft TMDL was presented to area representatives on June 15, 2005. The TMDL was also available on the IDNR web site. Comments were accepted and reviewed for 30 days. Where appropriate these comments were incorporated into the TMDL.

#### **Monitoring Plan for TMDL(s) Under Phased Approach**

*The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).*

Follow up biological monitoring will take place in fall 2005 to determine if biological targets are met. If they are not, continued monitoring will occur with the addition of chemical parameter monitoring to reassess the TMDL for phase 2. The administrative record defines the frequency and timing of the sampling as that require to allow for continued 'monitored' status of the stream; a five year cycle. This would require additional sampling by 2009.

#### **Reasonable assurance**

*Reasonable assurance only applies when reductions in nonpoint source loading is required to meet the prescribed waste load allocations.*

All WLA TSS is assumed to be sediment and still accounts for only approximately 1 % of the sediment load. NPS reduction of sediment will be required to meet the TMDL target. There is an established watershed project working to implement BMPs in the watershed at this time and their efforts continue.

Reasonable assurances for nutrients are not included in phase I of the TMDL. There are no required load or waste load reductions in this phase.